

Check list of water beetles recorded from Changbai Mountain area¹

Ji Lanzhu(姬兰柱) Wang Miao (王 淼)

Institute of Applied Ecology, Chinese Academy of Sciences, Shenyang, 110015, P. R. China

Abstract The water beetles recorded from Changbai Mountain are listed. *Amphizoa sinica* Yu & Stork and *Ametor scabrosus* (Horn) are distributed only in Changbai Mountain area. The habitat of water beetles in each locality is described.

Key words: Water beetles, Check list, Changbai Mountain

Introduction

Water beetles often refer to a palpicornia, constitute a rather large group of coleoptera, distributed in all parts of the world. They show a great morphological diversity and a tremendous range in size.

Traditional water quality monitoring consists of dipping water samples out of streams, carrying these samples back to laboratory, and then subjecting them to a series of chemical analyses. By looking at the concentrations of various pollutants, scientists hope to make predictions about how dangerous this water might be to either humans or aquatic life. While such chemical monitoring is a crucial part of any water quality program, the sole use of chemical measurements is often very inadequate.

Benthic macroinvertebrates have been used to assess water quality problems in streams and rivers throughout of the world. Although China is one of the largest counties in the world, very little is known about the water beetles and how about benthic macroinvertebrates can be used to assess stream water quality. So it is necessary to know the fauna of water beetles and other benthic macroinvertebrates in China.

Only about 400 water beetle species are recorded from China. Even the first volume of WATER BEETLES OF CHINA (M. A. Jaech & L. Ji (eds)) was published in 1995, which only 19 new species described. Biodiversity of aquatic coleoptera is still unexpectedly rich in species.

Changbai Mountain is one of the most valuable reserves for its various natural ecosystems and rich gene pool, especially for the altitudinal vegetation zone in the mountain, that makes the mountain a nonsubstitutive ecological research site. The water beetles in Changbai Mountain are very rich. Herein we only listed 69 species, which we identified. There are many water beetles, which we collected there, unknown.

Material and Methods

All water beetles we list were collected in Changbai

Mountain, in a large variety of water bodies, such as pools, lakes, marshes, brooks, streams and rivers by using a water net through the water plants, especially close to the shores and banks, sometime disturbing gravel and water vegetation before the net is necessary. The habitat of water beetles in each locality is described. The scientists who are specialist in the field, and deposited in the Institute of Applied Ecology, Chinese Academy of Sciences, identified the specimens.

List of localities sampled in Changbai Mountain

1. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohuj* District; Erdao Bai He (= 2nd White River), near bridge, 10~15 m wide, fast flowing, 650 m a.s.l.; 15.VIII.1994; leg. Jaech, Ji & Wang; [2]
2. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohuj* District; small ground water pool, shaded, decaying leaves, in forest, ca. 10 m from the river bank; 15.VIII.1994; leg. Jaech; [3]
3. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohuj* District; several unshaded pools in the surrounding of Baihe City, near Academia Sinica Changbai Mountain Research Station, ca. 700 m a.s.l.; 15.VIII.1994; leg. Jaech, Ji & Wang; [4]
4. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 60 km N Baihe City; Shao Tian Chi (= Small Heaven Lake), warm water (probably thermally heated), ca 1700 m a.s.l.; 16.VIII.1994; leg. Jaech, Ji & Wang; [5]
5. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 60 km N Baihe City; small stream, feeding the lake (loc. 68), ca. 1 m wide, warm water, shaded, flowing through birch forest, basalt, 1700 m a.s.l.; 16.VIII.1994; leg. Jaech, Ji & Wang; [6]
6. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; Erdao Bai He, close to loc. 68, ca. 10 m wide, gravel bank, fast flowing, 1700 m a.s.l.; 16.VIII.1994; leg. Jaech, Ji & Wang; [7]
7. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu

¹ The project was funded by the Opened Research Station of Mt. Changbai Forest Ecosystems, the Chinese Academy of Sciences

- County; Changbaishan Biosphere Reserve; near road to Mountain; small stream, ca. 1 - 2 m wide, flowing through dense primary coniferous forest, water very cold, 1700 m a.s.l.; 16.VIII.1994; no water beetles found; [8]
8. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 60 km N Baihe City; river, ca. 5 m wide, very cold water, fast flowing, in very deep (ca. 4 m) gorge, through primary coniferous forest, near road to Changbai Mountain, 1200 m a.s.l.; 16.VIII.1994; leg. Jaech, Ji & Wang; [9]
 9. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 60 km N Baihe City; ca. 20 m from loc. 72; rain water pool (probably fed by underground aquifer); 16.VIII.1994; leg. Jaech, Ji & Wang; [10]
 10. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 50 km N Baihe City, near the road to Changbai Mountain; stream, 2 m wide, very cold, flowing through primary coniferous forest, 1100 m a.s.l.; 16.VIII.1994; leg. Jaech, Ji & Wang; [11]
 11. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; on the way to top of Changbai Mountain, ca. 50 km N Baihe City, ca. 200 m N of Bai Shan Station; stream, ca. 3 m wide, basalt, warm water (probably thermally heated), flowing through degraded primary forest, 1100 m a.s.l.; 16.VIII.1994; leg. Jaech, Ji & Wang; [12]
 12. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; 6 km W Baihe City; Toudao Bai He (= 1st White River), ca. 20 m wide, basalt, 600 m a.s.l.; 17.VIII.1994; leg. Jaech, Ji & Wang; [13]
 13. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; springfed pool, ca. 50 m from loc. 76, unshaded; 17.VIII.1994; leg. Jaech, Ji & Wang; [14]
 14. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; near Hongsi Forest Station, ca. 30 km NE Baihe City; stream, ca. 3 m wide, through primary broadleaf forest, basalt, ca. 650 m a.s.l.; 17.VIII.1994; leg. Jaech, Ji & Wang; [15]; (see Fig. 23)
 15. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; shallow pool with muddy edges, close to loc. 78; 17.VIII.1994; leg. Jaech, Ji & Wang; [16]
 16. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 30 km NE Baihe City; near Hongsi Forest Station; Sidao Bai He (= 4th White River), ca. 30 m wide, ca. 650 m a.s.l.; 17.VIII.1994; leg. Jaech, Ji & Wang; [17]
 17. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; near Baihe City; Erdao Bai He, below the power plant dam, ca. 4 m wide, degraded primary forest, ca. 650 m a.s.l.; 17.VIII.1994; leg. Jaech, Ji & Wang; [18]
 18. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 80 km SE Baihe City; Yuan Chi (= Round Lake), Sphagnum peat bog, ca. 650 m a.s.l.; 18.VIII.1994; leg. Jaech, Ji & Wang; [19]; (see Fig. 24)
 19. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 80 km SE Baihe City; near loc. 82; shallow, unshaded roadside rain pools; 18.VIII.1994; leg. Jaech, Ji & Wang; [20]
 20. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 70 km SE Baihe City; blackwater stream, 3-5 m wide, slowly flowing, very cold water, margins with Sphagnum, 1100 m a.s.l.; 18.VIII.1994; leg. Jaech, Ji & Wang; [20a]
 21. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 60 km SE Baihe City; near Dong Fang Bridge; river, ca. 5 m wide, 1000 m a.s.l.; 18.VIII.1994; leg. Jaech, Ji & Wang; [21]
 22. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 40 km SE Baihe City; Heilong Jiang (= Black Dragon River), 2 - 3 m wide, very cold water, flowing through dense forest, ca. 900 m a.s.l.; 18.VIII.1994; leg. Jaech, Ji & Wang; [22]
 23. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 10 km SE Baihe City; small stream, ca. 2-3 m wide, slightly polluted, ca. 800 m a.s.l.; 18.VIII.1994; leg. Jaech; [23]
 24. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; near loc. 87; roadside pool, unshaded, ca. 50 cm deep; 18.VIII.1994; leg. Jaech; [24]
 25. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohuj* District; surroundings of Changbai Mountain Research Station, along the road to Changbai Mountain; unshaded roadside pools, ca. 750 m a.s.l.; 19.VIII.1994; leg. Jaech; [25]
 26. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohuj* District; near Power Plant of Baihe City; forest pool, obviously springfed, rich in decaying organic matter, in primary forest, cool water, ca. 750 m a.s.l.; 19.VIII.1994; leg. Jaech; [26]
 27. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City; Baohuj* District; Erdao Bai He Power Plant Canal, near loc. 81, 90; ca. 750 m a.s.l.; 19.VIII.1994; leg. Jaech; [27]
 28. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City; Baohuj* District; Erdao Bai He below Erdao Bai He Power Plant, near Baihe City, near loc. 81, but further upriver, below the big dam, ca. 750 m a.s.l.; 19.VIII.1994; leg. Jaech; [28]
 29. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohuj* District; near Power Plant of Baihe City, near loc. 90; unshaded, springfed pools, cold water, ca. 750 m a.s.l.; 19.VIII.1994; leg. Jaech; [29]
 30. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 62 km N Baihe City; hot spring, 1 km below the waterfall, temperature

varying between 10°C ~ 50°C within a few centimeters, ca. 1800 m a.s.l.; 20.VIII.1994; leg. Jaech, Ji & Wang; [30]; (see Fig. 20)

31. Jilin Province; Yanbian Korean Autonomous Prefecture; Antu County; Changbaishan Biosphere Reserve; ca. 62 km N Baihe City; Erdao Bai He, including pools on gravel bank, upstream of loc. 70, ca. 1750 m a.s.l.; 20.VIII.1994; leg. Jaech, Ji & Wang; [31]; (see Fig. 21)

Check list

Family Noteridae

1. *Noterus angustulus* Zaitzev
2. *Noterus japonicus* Sharp

Family Dytiscidae

3. *Agabus aequalis* Sharp
4. *Agabus brandti* Harold
5. *Agabus congener* (Thunberg)
6. *Agabus kholini* Nilsson
7. *Agabus udege* Nilsson
8. *Agabus ussuriensis* Nilsson
9. *Colymbetes dahuricus* Aube
10. *Cybister japonicus* Sharp
11. *Dytiscus sinensis* Feng
12. *Graphoderus adumii* Clark
13. *Graphoderus zonatus* (Hoppe)
14. *Hydaticus aruspex* Clark
15. *Hydaticus grammicus* Germar
16. *Hydroglyphus japonicus* (Sharp)
17. *Hydroglyphus pusillus* (Fabricius)
18. *Hydroporus angusi* Nilsson
19. *Hydroporus brevisculus* Poppius
20. *Hydroporus submuticus* Thomson
21. *Hydroporus uenoi* Nakane
22. *Hygrotus inaequalis* (Fabricius)
23. *Hygrotus chinensis* (Sharp)
24. *Hygrotus confluentis* (Fabricius)
25. *Hygrotus flaviventris* (Motschulsky)
26. *Ilybius chishimanus* Kono
27. *Laccophilus difficilis* Sharp
28. *Laccophilus lewisii* Sharp
29. *Laccophilus sharpi* Regimbart
30. *Nebrioporus hostilis* (Sharp)
31. *Neonectes natrix* (Sharp)
32. *Oreodytes sanmarkii* (Sahlberg)
33. *Platambus jilanzhui* Wawalka & Brancucci
34. *Platambus fimbriatus* Sharp
35. *Rhanus notaticollis* (Aube)
36. *Rhanus suturalis* (Macleary)

Family Amphizoidae

37. *Amphizoa sinica* Yu & Stork

Family Halipidae

38. *Halipus davidi* Vondel
39. *Halipus furcatus* Seidlitz

40. *Halipus simplex* Clark
41. *Halipus steppensis* Guignot
42. *Peltodytes dauricus* Zimmermann

Family Grinidae

43. *Dineutus (Spinodineutes) orientalis* (Modeer)
44. *Gyrinus (Gyrinulus) minutus* Fabricius
45. *Gyrinus (s. str.) curtus* Motschulsky
46. *Gyrinus (s. str.) japonicus* Sharp
47. *Gyrinus (s. str.) pullatus* Zaitzev
48. *Orectochilus (s. str.) villosus villosus* (Müller)

Family Hydraenidae

49. *Hydraena miyatake* Sato
50. *Hydraena riparia* Kugelann
51. *Limnebius glabriventris* Shatrovsky
52. *Ochthebius (s. str.) angusi* Jaech
53. *Ochthebius (s. str.) marinus* (Paykull)
54. *Ochthebius (s. str.) satoi* Nakane

Family Helophoridae

55. *Helophorus (Gephelophorus) auriculatus* Sharp
56. *Helophorus (Rhopalhelophorus) browni* Angus
57. *Helophorus (Rhopalhelophorus) pitcheri* Angus
58. *Helophorus (Rhopalhelophorus) timidus* Motschulsky

Family Hydrophilidae

59. *Ametor scabrosus* (Horn)
60. *Berisus fischari* Schoedl
61. *Berisus lewisii* Sharp
62. *Berisus punctipennis* Harold
63. *Crenitis apicalis* Reitter
64. *Hydrochara affinis* (Sharp)
65. *Hydrochara libera* (Sharp)
66. *Laccobius bedeli* Sharp
67. *Laccobius binotatus* d'Orchymont
68. *Laccobius inopinus* Gentili
69. *Laccobius oscillans* Sharp

References

1. Hansen, M. 1991: The Hydrophiloid Beetles. Biologiske Skrifter 40. Copenhagen: The Royal Danish Academy of Sciences and Letters, pp. 1-137.
2. Jaech, M.A. & L. Ji (eds). 1995: Water Beetles of China. Vol. I. Wien: Zoologisch-Botanische Gesellschaft in Österreich an Wiener Coleopterologenverein, pp. 1-410.
3. Morse, J.C., L. Yang & L. Tian. 1994: Aquatic Insects of China Useful for Monitoring Water Quality, Nanjing: Hohai University Press, pp. 1-570

(Responsible Editor: Chai Ruihai)